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Serum 25-hydroxyvitamin D Level is Associated with Arterial Stiffness, Left Ventricle Hypertrophy and Inflammation in Newly Diagnosed Hypertension

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Objectıves: Vitamin D may modulate vascular inflammation, vascular smooth muscle cell proliferation, the renin-angiotensin system, and cardiomyocyte proliferation, myocardial fibrosis and proliferation. These mechanisms may play a role on arterial stiffness and left ventricle hypertrophy in hypertensive patients. We aimed to evaluate the association between serum vitamin D with arterial stiffness and left ventricle hypertrophy (LVH) in patients with hypertension.
Methods: We studied 133 patients with newly diagnosed hypertension (mean age; 62.9±10.6 years). Pulse wave velocity (PWV), which reflects arterial stiffness, was calculated using the single-point method via the Mobil-O-Graph® ARCsolver algorithm. Left ventricle mass index (LVMI) was determined according to Deverux formula. The patients were divided into two groups according to serum vitamin D level; vitamin Dlow group <20 ng/ml and vitamin Dhigh group ≥20 ng/ml.
Results: The highest PWV, high sensitive C reactive protein (hs-CRP) and LVMI values were observed in vitamin Dlow group compared with vitamin Dhigh group (Table). Multiple linear regression analysis showed that vitamin D level was independently associated with LVMI (β=-0.235, p=0.002) and PWV (β=-0.432, p<0.001). Adjustment for age, sex, parathyroid hormone level, body surface area and mean blood pressure did not modify these associations. Vitamin D level was also independently associated with hs-CRP (β=-0.143, p=0.047). But adjustment for parathyroid hormone level or body surface area and mean blood pressure attenuate this association.
Conclusıon: Serum 25-hyroxyvitamin D is independently related with arterial stiffness, LVH and inflammation. Vitamin D may play a role on pathogenesis of arterial stiffness and LVH in patient with newly diagnosed hypertension.

Table. Comparison of Baseline, Laboratory and Echocardiographic Characteristics between Groups

Variables	Vit Dhigh Group	Vit Dlow Group	P value
Age (years)	62.6±10.6	64.5±10.3	0.417
Hs-CRP (mg/dl)	0.30 (0.20-0.72)	0.40 (0.20-1.10)	0.021
LVMI (g/m2)	87.8±32.1	120.2±47.9	0.001
PWV (m/s)	7.0±2.1	8.9±2.0	0.001
Vitamin D (ng/mL)	24.1±3.8	9.5±4.0	<0.001

Hs-CRP; high sensitive C reactive protein, LVMI; left ventricular mass index, PWV; pulse wave velocity

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Can Ischemia Modified Albumin and Brain Natriuretic Peptide Levels Predict The Extension of Coronary Artery Disease in Low-Intermediate Risk Unstable Angina Pectoris?

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Objectıve: The extension of coronary artery disease in both stable angına pectoris and acute coronary syndromes is important and also closely associated with prognosis. Estimation of severity of coronary artery disease is important before invasive procedures for selection of therapeutic approach. Ischemia modified albumin (IMA) is relatively new molecule and has been conducted researches on it and it is known to be increased during myocardial ischemia. In our study, we investigated whether IMA and brain natriuretic peptide (BNP) levels would predict the extension of coronary artery disease in patients with low-intermediate risk unstable angina pectoris (USAP).
Materıals-Methods: Sixty-five patients (40 M, 25 F; mean age 59.8±12.1 years) admitted to emergency department who presented with low-intermediate risk USAP (hemodinamically stable, slightly elevated troponin levels) were included to the study. All patients underwent coronary angiography within 60 minutes after admission. The extension of coronary artery disease were calculated with Gensini score index. >50% stenosis was accepted as severe coronary artery stenosis. IMA, troponin, BNP, lipid panel and cell blood count were measured from venous blood collected from antecubital vein taken at the admission. The relation between IMA and laboratory parameters were analysed by Spearman correlation analysis.
Results: Coronary angiography revealed at least one critical stenosis in coronary arteries of fifty-one of 65 patients. Coronary angiography revealed no severe coronary artery stenosis in 14 patients. There was no difference between groups in terms of demographic characteristics (Table 1). Diastolic blood pressure was significantly higher in patients with severe coronary stenosis compared to patients with no severe stenosis (Table 1). Gensini scores were 44±29 in patients with severe coronary artery disease and 2.7±3.4 in patients with no severe coronary artery disease. IMA levels were significantly higher in patients with severe coronary disease compared with no severe coronary artery disease (320±306 vs. 143±127; p=0.02). CRP and BNP levels were significantly higher in patients with severe coronary artery disease compared with no severe disease (14.9±21.6 vs 6.7±7.1; p=0.04; 149±161 vs. 46±36; p=0.001 respectively). Troponin levels were similar between the groups. Correlation analysis revealed weak positive correlation between Gensini score and both IMA and age (r=0.25; p=0.05, r=0.24; p=0.054 respectively). The best correlation was between Gensini score and BNP (r=0.44; p=0.02).
Dıscussıon: It is important to predict the extension of coronary artery disease in low-intermediate risk USAP both for diagnosis and treatment before coronary angiography. According to the results in our study IMA and BNP may predict the extension of coronary artery disease before performing coronary angiography in the early stage of acute coronary syndromes.

Table 1

	Patients with severe coronary artery disease	Patients without severe coronary artery disease	p
Age (years)	62.1±10.6	51.4±13.8	0.15
Gender (M)	33	7	0.24
Hypertension (n)	32	8	0.48
DM (n)	21	4	0.29
Smoking history (n)	21	4	0.29
FBG (mg/dL)	158±66	129±70	0.34
TC (mg/dL)	176±42	156±24	0.08
TG (mg/dL)	147±65	135±43	0.43
HDL-C (mg/dL)	34±10	31±9	0.32
LDL-C (mg/dL)	113±39	97±21	0.49
SBP (mm Hg)	134±19	125±12	0.69
DBP (mm Hg)	80±12	68±20	0.04
HR (beat/min)	82±13	75±13	0.08
EF (%)	54±7	58±5.5	0.04

Demographic characteristics and laboratory findings of the groups

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Gamma Glutamyl Transferase Activity is Independently Associated with Oxidative Stress Rather than SYNTAX score in Stable Coronary Artery Disease

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Background: Gamma glutamyl transferase (GGT) is involved in the pathophysiologic process of coronary atherosclerosis. GGT activity plays a role in the catabolism of glutathione which is known as one of the major antioxidants. However, there is a lack of researches on direct examination of relevance between serum GGT activity with systemic oxidative stress.
Objectıves: We aimed to investigate the relationship between GGT activity with systemic oxidative stress markers and extent and complexity of coronary artery disease (CAD) assessed with SYNTAX score in stable CAD.
Methods: Measurements were obtained from 359 patients with stable CAD (Mean age = 57.7±10.1 years). The patients were divided into two groups according to the median GGT level (GGTlow group ≤10 and GGThigh group> 10). Angiography was performed and SYNTAX score was calculated in all patients. Oxidative stress markers (TOS: total oxidant status, TAC: total antioxidant capacity and OSI: oxidative stress index) were measured in all patients.
Results: While SYNTAX score and oxidative stress markers such as TOS and OSI have been increased, TAC was decreased in GGThigh group compared with GGTlow group (p<0.05, for all). GGT activity was independently associated with diabetes (β=0.106, p=0.015) and OSI (β=0.556, p<0.001) in multiple linear regression analysis. However, the independent association between GGT activity and SYNTAX score was not found in present study (β=0.063, p=0.238).
Conclusıon: In stable CAD, increased GGT activity within the normal range is associated with increased oxidative stress rather than increased extent and complexity of CAD.

Comparison of oxidative stress markers between the groups

Variables	GGTlow Group (179)	GGThigh Group (180)	P value
TOS (μmol H2O2 Eq/L)	8.2±1.3	10.2±2.1	<0.001
TAC (μmol trolox Eq/L)	1.16±0.17	1.02±0.18	<0.001
OSI (arbitrary unit)	7.4±2.1	10.5±3.6	<0.001

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